

Project 8 - 20 points

Write a Java program to create a GUI using `JFrame`, `JTextField`, `JLabel` and `JButton` objects. This is continuation of Project 7 which used the text-based menu driven model.

Write two value-returning methods called `farToCel()` and `celToFar()`. These two methods will convert temperatures from Fahrenheit to Celsius and Celsius to Fahrenheit respectively. They will each take a single `int` parameter and return the converted value as an `int`. (These should already be done and can be taken from Project 7. No other code from Project 7 will be of any consequence.)

Here is a picture of what you will create:



In your window constructor, do the following:

- Create two labels “Temperature:” and “Results:”
- Create two text fields:
 - The temperature text field is 10 columns wide and should be initially set to zero.
 - The results text field is 40 columns wide, has no initial value and should not be an editable field.
- Create two buttons “Celsius to Fahrenheit” and “Fahrenheit to Celsius”.
- Set the window title to “Celsius and Fahrenheit Conversion”
- Create the Container for the content pane:
 - Set the layout to the Grid layout of 3 rows by 2 columns
 - Add the temperature label and text field.
 - Add the buttons.
 - Add the result label and text field.
- Assign the button handlers (discussed below).

- Set the window size to 375 pixels wide by 120 pixels high.
- Set the default close operation to EXIT_ON_CLOSE and set the window visible.

For the button handlers, recall that you will need to create additional classes that implement the `ActionListener` interface. For each `actionPerformed()` method, you should:

- Read the temperature text field value.
- Convert the `String` temperature to an integer.
- Convert the temperature from one scale to the other.
- Display the relative information in the results text field.

The `main()` method should have only one line of code:

```
p8 window = new p8();
```

Which creates a new `p8` object and assigns it to the reference variable `window`.

You must demonstrate your project to your instructor as part of receiving credit.

Comment all sections. No comments mean lost points!

This project should be called `p8.java` and submitted using:

```
$ submit jojo p8.java
```

[For 5 points of extra credit, read the **try/catch** section of Chapter 12 and do not allow non-numeric quantities for Temperature text field and display an error in the Result text field like so:]



You must include this in the `p8.java` program when submitted and demonstrate this part to your instructor for the extra credit.